

The benefits of straddle carriers

CVS Ferrari, Piacenza, Italy

CVS Ferrari is one of the youngest companies to enter into the straddle carrier market and it is strongly convinced about the benefit that straddle carriers can have over others.

Advantages of straddle carriers

Straddle carriers are by far the most simple and effective system today available in the market for different reasons. First of all CVSF SC can do all the jobs and can be easily managed by Terminal Operation Systems with great saving in software management packages. Straddle carriers have higher flexibility compared to RTG or RMG handling systems since one can always decide to deploy the right number of units to handle, the quantity of containers one has to handle and they can be sent to all corner of the terminal. They have higher productivity rates compared to terminal tractors since they can lift containers off the ground without the need of an STS operator and they can stack straight in the yard without the need of waiting for the availability of another machine (i.e. RTG or RMG). They have higher selectivity compared to again RTGs or RMGs since they can stack up to two or three high max, and can sort out a specific container in less time due to the higher travelling speed.

Innovations

Since CVSF came quite late into this world, it was forced to bring as many innovations as possible in order to break through.

Today CVSF is the only manufacturer able to deliver a straddle carrier one over two or one over three completely hydrostatic with the motors fitted straight inside the wheel hubs. This solution is recognised as a major innovation as it reduces the maintenance costs which had previously been due to frequent breakdown of those mechanical parts involved in the transmission of the torque from the engine to the wheels. The variable displacement pumps and motors fitted on CVSF hydrostatic machines have a lifespan of more than 24,000 hours before replacement.

Following the same concept applied to the hydrostatic version, CVSF has fitted the electrical motors straight inside the wheel hubs in order to save all the mechanical parts that often get extremely damaged during daily operations. The regenerative system fitted on the CVSF electrical straddle carrier will reduce by approx 10-15 per cent the fuel consumption compared to competitors.

The use of the same type of permanent magnet motors for generating energy, for hoisting and for travelling will minimise the cost of the inventory in the spare part department.

The use of can bus integrated management control means that the same CPUs are completely interchangeable all around the machine; another inventory cost savings.

On top of this CVSF has decided to use a latest generation motor. It is a 'permanent magnet motor' meaning the magnets mechanically fixed inside the rotor.

This solution guarantees the magnets are better fixed, resulting in the possibility of using the motor at a higher rotating speed without the risk of losing the magnets (this defect is present in motors using magnet fixed with glue or systems other than mechanical ones).

This solution also offers two other great advantages:

- The ability of blowing the cooling straight into the centre of the rotor where the temperature gets higher and the heat is generated



CVSF straddle carriers feature an innovative hydrostatic drive as well as hydraulic motors inside the wheel hubs.

- The ability to use the same motor for a number of different applications inside the machine, as the range of rotating speeds offered by this motor varies from 800 rpm up to 9,000 rpm

This means the same motor is used for hoisting and for travelling where the rotating speed reaches 4,000 rpm and the same motor also is used for generating the electrical energy where the rotating speed can go up to 2,100 rpm.

In addition CVSF has designed the entire electrical system in a way that it is capable of regenerating energy developed by the motors when they are working as a brake (i.e. when lowering the load or when the machine is braking).

The savings in fuel consumption offered by the ability of reutilising the kinetic energy generated by the motors and transforming this into a sort of potential energy available whenever you need it, is the real challenge offered by the electrical straddle carriers. CVSF standard models are already capable of reutilising kinetic energy by absorbing it inside the bus capacitors on top of the motors and delivering it to the auxiliaries system fitted on the machine or using it for whatever combined movement desired. In the future, electrical straddle carriers will change the ways machines are operated and they will pay back more as people will be able to lift the load while braking or accelerate while lowering the load. This virtuous way of driving will allow a higher fuel savings rate till the ability to store this kinetic energy in a different way becomes available.

Costs

CVSF hydrostatic machine costs something like 15 per cent less than the electrical version. The fuel savings offered by the electrical machine will most likely make this machine more economical in the long term compared to the hydrostatic one. The hydrostatic version is also equipped with a similar regenerative system. In fact the behaviour of the hydrostatic motors while working and idle is the same as the electrical version and the CVSF machine can regenerate kinetic energy when it is generated and used at the same time. Of course in the future the electrical version may offer the ability to transform kinetic energy into potential energy that can be used at any time. When this system becomes available than the savings of the electrical version will probably be greater than the hydrostatic version, but this is still some ways away and more work needs to be done.

Other potential pros in favour of electrical straddle carriers are:

- Life span of the electrical components, although CVSF is convinced that their latest generation of hydraulic can reach a comparative level
- Absence of oil. Yet again, CVSF is confident that its modern hydraulic is also leakage free
- Lower noise levels achievable by the electrical version. The difference is about four dba when you measure the noise level at a distance of 20 metres from the machine. This has become an important decision factor for all terminals located nearby residential areas. When this isn't an issue, the cheaper purchasing price offered by the hydrostatic version is still able to make a substantial difference in the customer decision

In regards to the electrical straddle carrier, CVS Ferrari has received the first order from Germany last month and the prototype will be ready for tests in September. CVS Ferrari has already agreed with Bremenhaven CTB to test the electrical straddle carrier at the German terminal after it has passed its internal tests relevant to noise and functionality.



CVSF straddle carriers are able to deliver one over two, or two over three.

ABOUT THE COMPANY

C.V.S. SpA, a leading manufacturer of container handling equipment, began its operation in 1973 in Roveleto di Cadeo (Pc), located in the northern part of Italy.

Initially specialising in the production of crane-carriers, C.V.S. obtained an important contract with the company Sumitomo in Japan for the construction and supply of five-, six-, seven-axle crane-carriers. For Sumitomo alone C.V.S. supplied 350 crane-carriers and has another 1,500 machines operating all over the world.

In 1984 C.V.S. diversified its production range designing, manufacturing and selling Container Handling Equipment. C.V.S. now manufactures the most complete range of Container Handling Equipment both for standard requirements and the most special Customers' specification.

C.V.S. was awarded with the ISO 9001 certificate issued by RINA in 1996.

A further expansion in 2000 led C.V.S. to sign an important agreement with the American manufacturer TAYLOR in order to meet the new challenges of the global market. Thanks to this strategic decision, the reach stacker manufactured in Roveleto di Cadeo, will be marketed in USA and Canada under the name of TAYLOR.

In July 2002, C.V.S. announced the acquisition of the Company BELOTTI, the famous historical Italian Manufacturer of container handling equipment. The new Company called 'FERRARI BELOTTI' is controlled by the C.V.S. FERRARI GROUP.

ENQUIRIES

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